Factors affecting the application of management accounting in Vietnamese enterprises

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CHRONICLE	ABSTRACT
	This paper aims to investigate factors affecting the application of management accounting in Vietnamese enterprises. Quantitative research was conducted and data was collected by sending questionnaires to 120 companies in the manufacturing, trading and service sectors in Vietnam. 6 factors were selected to measure the application of management accounting in enterprises through correlation and regression analysis. The results showed that 5 out of 6 factors positively associated with the level of management accounting application; including firm size, organizational culture, organizational structure, technology and human resources operations. In particular, corporate culture has the highest impact and opinion of managers has the lowest impact on management accounting application. Business environment has a negative impact on management accounting application in enterprises. Based on the research results, suggestions and recommendations are proposed for enterprises regarding application of management accounting. The research provided an overview of management accounting application and its benefits to enterprises. Whereby, it helps managers have a better understanding of management accounting and future directions for application. Moreover, the research results will be useful for managers to identify factors influencing their management accounting practices and improve the current management process applied in organizations.

1. Introduction

Rapid changes in global business environment have driven enterprises to transform towards sustainability by focusing on cost efficiency. Many studies have confirmed the benefits of management accounting in improving business sustainability. However, most studies focus on business enterprises since they play an important role in the economic growth in both developing and developed countries (Mitchell & Reid, 2000). Globally, the number of business enterprises accounts for 99% of the total organizations. In Vietnam, enterprises account for 97.3% of the total number of organizations and contribute to 54% of the Gross Domestic Product (GDP), and create 87% of jobs for workers. In other words, enterprises play a vital role in economic development in most countries. Therefore, business enterprises have received substantial attention from researchers worldwide. In the globalization context, enterprises are facing many challenges related to sustainable development, technological progress, fierce market competition, changes in management and limitations of capital funding (Nandan, 2010; Ahmad, 2012; Messner, 2016). According to Senftlechner and Hiebl (2015), in order for enterprises to survive and maintain their sustainable development, both financial and non-financial

information should be taken into consideration. As a result, management accounting is considered an effective management tool to support managers in performing management functions because it combines and emphasizes both financial and non-financial information in the decision making process of managers. In addition, management accounting provides various tools, techniques, and internal information for budgeting, executive planning, performance evaluation and decision making. Management accounting practices are not standardized due to a wide variety of business models in the market as well as various application in each enterprise. In Vietnam, although management accounting has been taught in universities since 1995, it has been applied in most Vietnamese enterprises nowadays. However, application of management accounting in Vietnamese enterprises remains at a relatively low level and low effectiveness (Anh, 2016; Hung, 2016). The fact is that enterprises encounter many problems in management accounting application and mainly apply traditional management techniques. Furthermore, the application of management accounting in Vietnamese enterprises is influenced by many factors inside and outside the organizations, which may increase or decrease the feasibility of management accounting application in Vietnamese enterprises. Therefore, it is essential to identify and quantify the impact of each factor on the application of management accounting in Vietnamese enterprises. The research objectives include:

- Identifying factors affecting management accounting application in Vietnamese enterprises;
- Evaluating the degree of impact of each factor on management accounting application;
- Proposing solutions to improve effectiveness of management accounting application in Vietnamese enterprises.

2. Literature review

2.1 Review of international research on factors affecting management accounting application

Kordlouie and Hosseinpour (2018) conducted a study on 340 enterprises in Iran in which data was collected through questionnaires and analyzed by structural equations. The management accounting techniques applied includes activity-based costing, activity-based budgeting, industry analysis, shareholder value analysis, product life cycle analysis and competitor analysis. The main influential factors include organizational characteristics (including size, competitive strategy and management decentralization), business potential (including customer power, advanced technology and market competition), operational technology (including the complexity of processing systems, advanced manufacturing technology and total quality management). Fasesin (2015) examined factors affecting management accounting in enterprises in Nigeria. The study showed that traditional management accounting techniques were widely applied in furniture manufacturing, food and beverage industry. The main techniques of management accounting applied in companies in Nigeria include controlling information through the use of current accounting data, comparing with data in the past, calculating financial indicators, business analysis and responsibility accounting. Moreover, contemporary management accounting techniques are also applied in listed companies. Particularly, techniques applied by these companies include controlling the planning process and forecasting inventory, customers, market shares, product life cycle. To investigate factors affecting management accounting application, the author applied the research model of Kosaiyakanont (2011). The results showed that in both types of management accounting methods (traditional and contemporary method), the influential factors include managers, finance and company structure with the similar level of impact. Armitage and Webb (2013) conducted a study on application of management accounting in Canadian companies and found that enterprises use budgeting and variance analysis mainly for the planning purposes, and do not focus on controlling function. Strategic management accounting tools such as quality costing, target costing and just in time, activity-based costing or balanced scorecard are not applied. The success of management accounting application in these companies depends on the qualifications of accountants as well as knowledge and experiences of the managers. The study also pointed out other influential factors such as financial capacity, company's investment, market fluctuations and competitors, firm

size. In particular, firm size has the highest impact (0.345), competitive market has the lowest and negative impact (-0.125) on management accounting application. Michael et al. (2013), Abdel (2008), Abdel (2004) examined the actual management accounting practices in manufacturing companies in the UK. Abdel and Luther (2006) conducted a study on management accounting practices in the food and beverage industry in the UK. The results indicated that management accounting application focuses on controlling information rather than supporting decision making. The research proved that the application of contemporary management accounting depends heavily on internal factors including managers' perspectives, accounting qualifications and financial capacity. External factors affect management accounting application include legal environment, competition, risks, and technological changes. Afirah (2018) carried out a study on management accounting application in 110 enterprises in the East Coast of Malaysia. The study proved that 3 factors affecting management accounting application include organizational characteristics, business potential and operational technology. Since management accounting application in Malaysia is organizational-specific, contingency theory was applied in this study. The research showed that small and medium-sized enterprises adopt the first 2 of the 4 stages of management accounting application based on framework of Nishimura (2003). In addition, the regression results showed that only operational technology has a positive impact on the management accounting application (p-value = 0.005). The other two variables, namely, organizational characteristics and business potential, had no significantly influence on the management accounting application. These findings are inconsistent with the results of studies on large companies in Malaysia. Ahmad (2012) investigated factors affecting management accounting application of Malaysian enterprises and proved that influential factors include enterprise size, intensity of market competition; participation of the owners in management accounting application and advanced manufacturing technology. Particularly, participation of the owners in management accounting application has the highest impact while advanced technology has the lowest impact. In addition, the research confirmed advantages of management accounting in enhancing management effectiveness and efficiency, increasing profits by reducing wastes and using of resources efficiently. Erserim (2012) conducted research on the impact of internal and external factors on management accounting practices in manufacturing companies in Turkey. Internal factors include firm size, organizational culture and management. The study concluded that firm size has the highest impact on management accounting practices and when a company expands its size (reflected by the number of employees), it requires a more rigorous management through decentralization to achieve optimal efficiency. The research results of Erserim was later applied and developed by Hiebl et al. (2013). The Hiebl's study examined external factors including investment environment, legal environment, cultural environment, social environment, and integration tendencies of countries. In which, investment environment has the highest impact on the process of application, contents and techniques of management accounting

Kosaiyakanont (2011) examined the relationship between perspectives and needs of business owners regarding management accounting application in the North of Thailand. The study showed that the greater the awareness of business owners on the importance and benefits of management accounting, the higher the management accounting needs. Besides, there is a difference in awareness (knowledge) about the importance and benefits of management accounting application between small enterprises and medium-sized enterprises. Particularly, medium-sized enterprises have greater awareness of the importance and benefits of management accounting as well as have higher management accounting needs compared small enterprises. Nandan (2010) studied the management accounting needs in enterprises. The study proved that management accounting information is very important for managers, especially in the management of resources and making decisions on resource allocation. Commonly used techniques include cost-volume-profit analysis, relevant information analysis, decisions making under constraints. Furthermore, knowledge and experiences of managers and qualifications of accountants have the highest impact on management accounting application. Abdel and Luther (2008) conducted a study on management accounting practices in 658 food and beverage companies in the UK. Influential factors examined in the study include perceived environmental uncertainty, organizational structure, firm size, complexity of processing system, advanced manufacturing

technology, total quality management, just in time system, corporate strategy, customer power, perishability level of products. The research results proved that:

- There is a positive relationship between the level of perceived environmental uncertainty and the level of sophistication of management accounting practices.
- There is a positive relationship between customer power and the level of sophistication of management accounting practices applied by enterprises. The reason is that when customers have higher power, companies have to improve their controlling function and decision making process to satisfy diverse customer needs;
- There is a positive relationship between the level of decentralization and the level of sophistication of management accounting practices;
- There is a positive relationship between enterprise size and the level of sophistication of management accounting practices;
- Companies applying Advanced Manufacturing Technology (AMT), Total Quality Management (TQM), Just in Time (JIT) system are more likely to adopt higher level of sophistication of management accounting practices compared to companies which do not apply AMT, TQM, JIT.

Hyvönen (2007) conducted a research on the management accounting application in manufacturing enterprises and provided empirical evidence on the wider extent of adoption of management accounting practices as well as the perceived benefits from the application and potential development in the future. The results proved that amount of capital, labor and market, cultural background and management habits, advanced manufacturing technology, advanced machinery and equipment were determinants of a success of management accounting application. Chenhall (2007) adopted contingency theory and pointed out that the factors affecting management accounting practices in enterprises include organizational characteristics (including size, competitive strategy and decentralization); business potential (including customer power, technological advancement and market competition); operational technology (including the complexity of processing systems, advanced manufacturing technology and total quality management). This theory supports the idea that there is no universally appropriate accounting system applied equally to all organizations in all circumstances (Otley, 1980). Xydias-Lobo et al. (2004) summarized empirical studies conducted in Australia, the UK and The US and identified the role of environmental factors and organizational factors. Specifically, environmental factors consist of globalization of markets, advances in information and manufacturing technology, increased competition. Organizational factors include core competencies, relationships with customers and suppliers, downsizing, outsourcing, flatter organizational structures, team working. Lavia et al. (2015), Laitinen (2003), Collis (2002) provided factors affecting changes in management accounting practices including motivators (market competition, enterprise structure, production technology), catalysts (financial inefficiency, a decline in market share, organizational changes), facilitators (accounting staff, level of autonomy, accounting requirements). In particular, changes in business environment and technology are considered a key factor affecting the changes of management accounting and strategic structure of enterprises. In contrast, enterprise structure and strategy are linked with changes in management accounting in the same context. Shields (1997) examined American enterprises and found that potential factors leading to changes of management accounting include competition, technology, enterprise structure and strategy. These factors have different impact on changes of management accounting.

Amat et al. (1994) revealed a positive relationship between market competition on the use of management accounting in small and medium-sized enterprises in Spain. The study indicated that when intensity of competition in the market increases, there is also an increase in the use of management accounting. The reason is that competition indirectly puts pressures on the enterprises to acquire more information including both financial and non-financial information to ensure that they remain competitive. Since all mentioned studies were conducted in the different study settings (in terms of geographical region or industry), the findings might vary, however, it is consistent with the

conception acknowledged by Messner (2016) who stated that the industry plays a vital role in management accounting application in enterprises.

2.2 Review of studies on management accounting application in Vietnam

Yen (2017) carried out research on management accounting application on 90 enterprises in Binh Dinh province. The results showed that management accounting application was influenced by three factors: (i) perceived benefits of management accounting; (ii) qualifications of accounting staff; (iii) size of enterprise. These factors were positively related to the success of management accounting application. Anh (2016) examined more than 220 enterprises to understand the impact of management accounting application on corporate performance in the transition economy in Vietnam. The study pointed out that both decentralization and competition had positive impacts on the use of contemporary management accounting techniques, but they had no impact on the use of traditional management accounting techniques. In addition, the study provided that management accounting practices contributed to improving the business performance. Hung (2016) conducted a survey on 186 enterprises and examined 7 factors affecting management accounting application in Vietnamese enterprises; namely enterprise size, cost of management accounting application, organizational culture, qualifications of accountants, corporate strategy, ownership structure, market competition, owner's perspective. These factors explained 34.8% of the impact on management accounting application in Vietnamese enterprises. The most influential factors are owner's perspective (19.16%), firm Size (18.67%) and corporate strategy (18.19%). In summary, although each study was conducted in a different context, and in diverse conditions of each country, management accounting practices are influenced by common factors including firm size (capital, number of employees, market, turnover), business environment (intensity of market competition, external environment, politics and laws), organizational culture (organizational design, development strategy, participation of the owners, regulations, working processes, organizational objectives), technology (advanced production technology, modern machinery and equipment), Experiences and knowledge of managers. Besides, some specific factors are examined in previous studies including financial capacity, requirement from outside, number of customers and partners, globalization and integration, market share, changes (regarding organization, human resources, technology). These studies applied qualitative and quantitative methods to investigate factors influencing management accounting practices, however, they did not show the level of application as well as management accounting techniques used in these enterprises. In addition, there has been not much research on factors affecting management accounting application in Vietnamese enterprises which applied a reliable quantitative method. Therefore, this study is conducted to fulfill the above research gaps and provide empirical evidence on the matter.

3. Methodology

3.1. Measurement scales

The preliminary scales were established based on the research objectives and scales of previous studies. Specifically, measurement scales were established based on prior research of Kordlouie and Hosseinpour (2018), Afirah (2018), Afirah (2017), Hung (2017), Lavia et al. (2015), Ahmad (2012), Abdel & Luther (2008), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003) and Shields (1997). Each previous study was analyzed in relation with specific characteristics of culture, society and people of each country which are compared with characteristics of Vietnamese enterprises, socio-political system, people and the level of economic development. It is concluded that the majority of Vietnamese enterprises are small and medium-sized enterprises, with low management qualifications, fierce competition of domestic market, developing stock market, the main type of enterprise is Limited Liability Company. Based on that, six factors examined in this study are explained as follows:

Enterprise size: This is an important factor affecting the structure and controlling of enterprises. Based on studies of Kordlouie and Hosseinpour (2018), Afirah (2018), Hung (2017), Armitage and Webb (2013), Michael et al. (2013); Ahmad (2012); Chenhall (2007), Hutaibat (2005), Kader and Luther

(2008) enterprise size is measured by: *the amount of capital, the number of employees, annual turnover, the number of products, market share.* According to prior studies, the larger the size of an enterprise, the higher the level of sophistication of management accounting practices. The reasons are explained as follows:

- The more diverse the business sector, the more specialized the management functions. Therefore, sophisticated management accounting techniques are required to perform management functions
- Large enterprises with strong financial capacity and sufficient infrastructure can facilitate management accounting application.
- The larger the size of enterprise, the higher the level of complexity of costing system and budgeting system.

External environment: This is a significant factor which is examined in many studies such as research of Afirah (2018), Armitage and Webb (2013), Michael et al. (2013); Ahmad (2012); Abdel and Luther (2008); Chenhall (2007); Xydias-Lobo et al. (2004); Laitinen (2003); Shields (1997); Mia and Clare (1999). The external environment is examined in the following aspects. Firstly, *legal environment* includes legal sources which have direct impacts on the enterprises' interests such as the regulations on tax, finance, banking, exchange rates, currencies, interest rates, accounting. Secondly, *competitive environment* consists of domestic and foreign competitors, competitive price, market, distribution channels and product quality. The competitive market has created chaos, pressure, risks and instability for enterprises. Therefore, enterprises operating in a competitive environment do not have much time to focus on developing the management accounting system. Thirdly, *technological environment* includes the development of information technology, production technology and management technology. In addition, *socio-cultural environment* includes globalization, nature, society and perspective. Analysis of environmental factors is displayed as follows:

- The more severe and diverse the environment, the more challenging it is for enterprises to develop management accounting system. The reason is that accounting system, production system, and control system of enterprises are required to be more dynamic, and prompt to ensure more effective control.
- When the external environment is uncertain and unstable, management accounting needs to provide flexible budgeting so that managers can anticipate potential risks and make appropriate decisions to ensure optimal financial control.
- When the external environment is uncertain, management accounting should be more flexible and focus on external subjects which results in the development of strategic management accounting and sustainability management accounting except traditional management accounting.

Opinion of managers: This factor directly affects the management accounting application in enterprises according to Afirah (2018), Hung (2017), Fasesin (2015), Michael et al. (2013); Armitage and Webb (2013), Ahmad (2012), Laitinen (2003), Shields (1997) and Ahmad (2012). Opinion of managers is examined in three aspects: Firstly, *awareness of management accounting* is reflected by the understanding of basic techniques and contents of management accounting such as budgeting, establishing standards, understanding basic management accounting reports, identifying criteria and methods to evaluate performance, ability to use management accounting information to make business decisions. Secondly*, appreciation of benefits of management accounting* is the result of fully understanding of management accounting. Thirdly, *willingness of managers to apply management accounting in their organizations* also affects the management accounting practices*.* Furthermore, accounting knowledge and experiences also play a vital role in management accounting application. It can be assumed that:

- Managers with high awareness and appreciation of the role of management accounting are more likely to apply management accounting in their organizations .
- Prior studies proved that there is a positive relationship between qualifications of accounting staff and knowledge/understanding of management accounting and management accounting application in enterprises.

Organizational structure: This factor is examined in studies of Fasesin (2015), Abdel and Luther (2008), Chenhall (2007) and Laitinen (2003). An enterprise is considered to have a strict organizational structure when it is divided into separate units/departments. Each small unit has its specific functions, rights and obligations. Each unit must perform its own performance evaluation according to the general requirements of the enterprise. Therefore, each unit will have its own reporting system to send to managers and related departments. Following assumptions are made:

- An enterprise with higher degree of decentralization tends to apply more sophisticated management accounting techniques to provide relevant information for managers in the process of planning, controlling and making decisions.
- In an organization with a complex structure, complex management accounting practices are required to ensure effective planning, controlling and evaluation. Furthermore, management accounting practices in each department/unit are more diverse and complicated.

Technology: Ahmad (2012), Abdel and Luther (2008), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003), Shields (1997) assessed technology in the following aspects manufacturing process, sales process, human resources management process, automation of accounting system with the support of advanced machinery, artificial intelligence. In addition, enterprises may apply Advanced Manufacturing Technology (AMT), Total Quality Management (TQM), or Just in Time (JIT) system with the support of robots to improve efficiency and effectiveness of production process.

- If the production process applies highly advanced technology, the control system becomes more standardized, the role of management control might diminish. Specifically, in enterprises with high-tech production processes, the inputs as well as production standards and production processes are established and fixed. Therefore, budgeting of enterprises applying advanced technology become simpler since there are fewer fluctuating factors which need to be forecasted compared to budgeting of other enterprises.
- When companies apply technology with a high degree of automation which can perform uncertain tasks/ objectives, management accounting practices become more flexible and unstandardized. Accordingly, management accounting can provide more relevant, and useful information promptly. In other words, advanced technology can provide information for strategic management with provision of non-financial information.

Organizational culture: Regarding impact of organizational culture on management accounting application, Hung (2017), Erserim (2012), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003) examined organizational culture in following aspects: organizational regulations on finance, operations, working, behaviors, reward, penalty, and management which might affect management accounting application.

- The culture of each region and each unit directly influence the design and use of management accounting practices.
- Units with modern culture are more likely to apply management accounting with diverse techniques.

3.2 Dependent variable: Management accounting application in enterprises

Armitage and Webb (2013), Michael et al. (2012), Ahmad (2012), Kosaiyakanont (2011), Nandan (2010) analyzed management accounting practices according to 4 management functions.

Applying management accounting in planning: management accounting provides useful information for the planning process (Howard et al., 2013; Michael et al., 2013; Ahmad, 2012; Kaplan, 1998). The plans established by managers are usually in form of a budget. A budget report is an action plan that quantifies organizational objectives according to the financial objectives of the entity.

Applying management accounting in controlling: Ahmad (2012); Kosaiyakanont (2011); Nandan (2010); Hyvönen (2007); Kaplan (1983) pointed out that in order to help managers perform controlling function,

the managerial accountant need to conduct specific tasks such as providing performance reports, listing all variances and evaluating performance. Management accounting analyzes variances between reality and plans or budgets occurring in the course of operation and production to improve the control system.

Applying management accounting in evaluation: According to Nandan (2010); Hyvönen (2007), Kaplan (1998) in order for the management to perform assessing function, management accounting must evaluate the effectiveness of the whole enterprise and each department regarding financial and operational aspects. From a financial perspective, management accounting generally uses basic financial indicators to support the assessment of corporate financial performance and apply these indicators in each responsibility center.

Applying management accounting in decision making: According to Michael et al. (2013), Ahmad (2012), Kosaiyakanont (2011), Nandan (2010), Hyvönen (2007), Kaplan (1998) the management accounting techniques help managers make decisions on production volume based on cost-volume-profit analysis (CVP), decision on selling price of products, short-term decisions based on relevant information.

Table 1
Measurement scales

Factors	Cod	Variables	Sources
1. Enterprise size	SIZE1	Capital	Kordlouie and Hosseinpour (2018) , Afirah (2018), Hung (2017), Armitage and Webb (2013), Michael et al. (2013), Ahmad (2012),
	SIZE2	Annual turnover	
	SIZE3	Number of employees	
	SIZE4	Number of products	
2. External environment	ENVI1	Legal environment	Afirah (2018), Lavia et al. (2015), Armitage and Webb (2013), Michael et al. (2013), Ahmad (2012), Abdel and Luther (2006), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003), Shields (1997)
	ENVI2	Competitive environment	
	ENVI3	Technological environment	
	ENVI4	Social-cultural environment	
3. Opinion of mangers	OPIN1	Awareness of management accounting	Fasesin (2015), Michael et al. (2013), Ahmad (2012), Laitinen (2003), Shields (1997)
	OPIN2	Appreciation of management accounting	
	OPIN3	Willingness to apply management accounting	
	OPIN4	Management strategy	
	OPIN5	Accountants' ability to provide consultation and directions	
4. Organizational structure	STRU1	Organization divided into departments	Fasesin (2015), Lavia et al. (2015), Abdel and Luther (2008), Chenhall (2007), Laitinen (2003)
	STRU2	Each department having specific functions, rights and responsibilities	
	STRU3	Each unit having a separate reporting system	
	STRU4	Each unit evaluates its own performance	
5. Technology	TECH1	Advanced manufacturing technology	Kordlouie and Hosseinpour (2018) , Afirah (2018), Lavia et al. (2015), Ahmad (2012), Abdel & Luther (2008), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003), Shields (1997)
	TECH2	Automation of sales	
	TECH3	Automation of human resources management	
	TECH4	Automation of accounting staff	
	TECH5	Total quality management	
	TECH6	Just in time system	
6. Organizational culture	CULT1	Establishing regulations on finance, human resources, reward, penalty, appointment, recruitment	Hung (2017), Erserim (2012), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003)
	CULT2	Establishing a code of conduct	
	CULT3	Support of managers to employees	
	CULT4	Cooperation of employees	
	CULT5	Consensus on development goals	
	CULT6	Building internal and external corporate image	
7. Management accounting application	APMA1	Application in planning	Armitage and Webb (2013); Michael et al. (2012); Ahmad (2012); Kosaiyakanont (2011); Nandan (2010); Hyvönen (2007); Pierce and O'Dea (1998); Bruggeman et al. (1996); Birkett et al. (1992); Scarbrough et al. (1991)
	APMA2	Application in controlling	
	APMA3	Application in evaluation	
	APMA4	Application in decision making	

-    *(Source: Compiled by the authors based on research results)*

3.2. Conceptual framework and research hypotheses

Conceptual framework

Based on the literature review, conceptual framework of the research on factors affecting management accounting application in Vietnamese enterprises is established as follows:
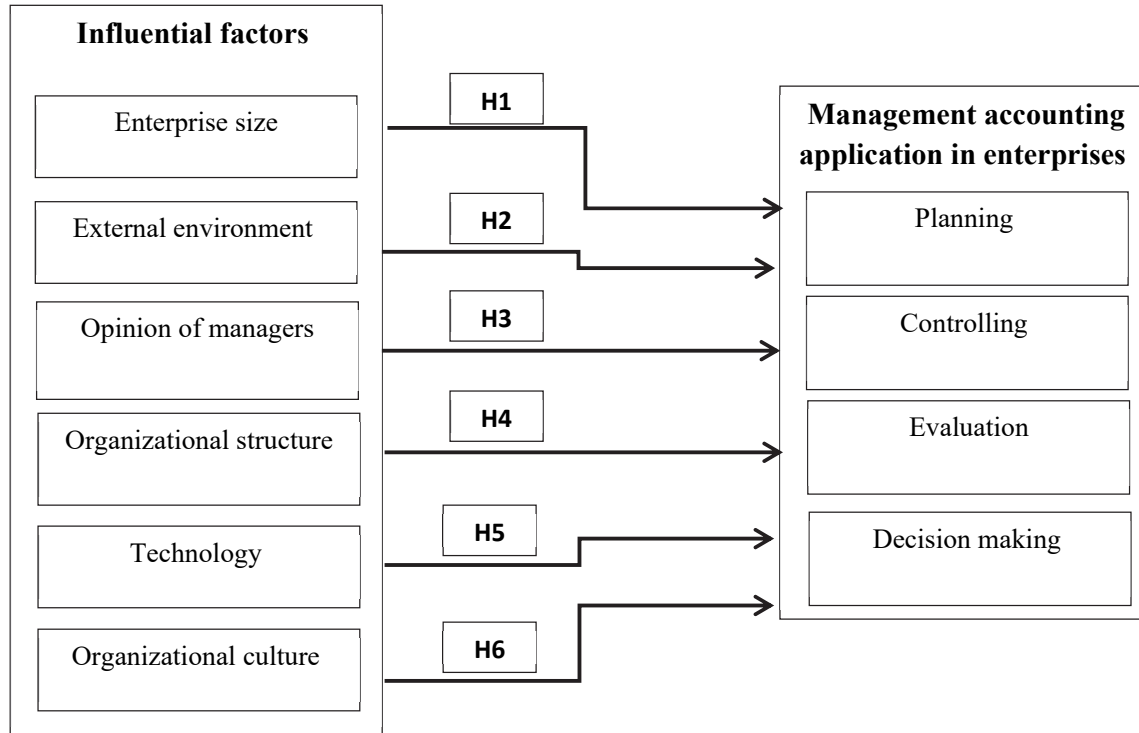
Fig. 1. Conceptual framework

Research hypotheses

Based on the conceptual framework and discussion with experts, 6 research hypotheses are proposed as follows:

Hypothesis H_1 – There is a positive relationship between enterprise size and management accounting application in enterprises.

Hypothesis H_2 – There is a negative relationship between environmental instability /uncertainty and management accounting application in enterprises.

Hypothesis H_3 – There is a positive relationship between opinion of managers on management accounting and management accounting application in enterprises.

Hypothesis H_4 – There is a positive relationship between strictness of organizational structure and management accounting application in enterprises.

Hypothesis H_5 – There is a positive relationship between the amount of advanced technology used in enterprises and the level of success of management accounting application.

Hypothesis H_6 – There is a positive relationship between development of organizational culture and management accounting application in enterprises.

Regression equation

Based on the above analysis, regression equation reflecting the relationship between factors and management accounting application is presented as follows:

$$APMA_i = \alpha + \beta_1 SIZE_i + \beta_2 ENVI_i + \beta_3 OPIN_i + \beta_4 STRU_i + \beta_5 TECH_i + \beta_6 CULT_i + \varepsilon$$

where α is constant, β_i represents the coefficient of variable and ε_i denotes residual.
Independent variables: Enterprise size (SIZE); External environment (ENVI); Opinion of managers (OPIN); Organizational structure (STRU); Technology (TECH); Organizational culture (CULT).

Dependent variable: Application of management accounting of enterprises I (APMA$_i$)

3.3. Questionnaire

In order to collect data for the research on the impact of factors on the application of management accounting in enterprises in Vietnam, research questionnaire was established based on literature review and consultation with experts was conducted to check and confirm the contents of the questionnaire. All variables were measured using a 5-point Likert scale in which 1 = "strongly disagree" and 5 = "strongly agree". The questionnaire was divided into 3 sections. Specifically, part 1 was general information of respondent, part 2 was general information of enterprise, and part 3 was the main part including (i) The actual situation of management accounting application in enterprise; (ii) The actual situation of management accounting techniques applied in enterprises; (iii) Factors affecting the application of management accounting in enterprise.

3.4. Quantitative research

Sample size: Hair et al. (1998) assumed that in order to conduct Exploratory Factor Analysis (EFA), the minimum sample size is 50. The sample size can be determined by the formula: n ≥ 50 + 8k, in which k is the number of independent variables in the model. In this study, the number of independent variables is 6 so the sample size is n ≥ 50 + 8 × 6 = 98 which is appropriate for EFA and regression analysis. Therefore, the sample size of 120 is appropriate in this study.

Data collection: Data was collected by sending questionnaires to respondents directly, via email and social media. Convenience sampling technique was applied due to its speed and efficiency.

Processing data: Cleaning data was conducted by eliminating invalid and blank answers. Then data was analyzed with the support of SPSS 22. Specific techniques include: Descriptive statistics including frequencies, measures of central tendency; Analysis of Variance including t-tests, F-tests; Reliability test using Cronbach Alpha coefficients; Exploratory Factor Analysis (EFA): KMO and Bartlett's test; Regression analysis was used to check model fit, correlation, residual to identify the relationship between variables.

3.5. Characteristics of respondents

For the purpose of this study, respondents were classified into groups regarding the type of enterprise, business sector, enterprise size. The total number of questionnaires distributed was 120, however, only 102 valid answers were received. The questionnaires were sent to chief accountants and directors of enterprises. If there was a difference in the answers between the director and chief accountant, it would be clear in the process of data cleaning. Therefore, data used for analysis was relatively reliable. The characteristics of surveyed respondents are shown in the table below:

Table 2
Characteristics of respondents

		Characteristics	Frequency	Percent (%)
1.	Gender	Male	16	15.7
		Female	86	84.3
		Total	102	100.0
2.	Academic Qualification	Bachelor	62	60.8
		Master	39	38.2
		Doctor	1	1.0
		Total	102	100.0
3.	Working Experience	Up to 5 years	28	27.5
		6 to 10 years	23	22.5
		11 to 15 years	22	21.6
		16 to 20 years	27	26.5
		Over 20 years	2	2.0
		Total	102	100.0
4.	Job title	Chief accountant	52	51.0
		Internal accounting	39	38.2
		Manager	11	10.8
		Total	102	100.0

- *(Source: Compiled by the authors based on research results)*

The results in the Table 2 show that the total number of respondents is 102, in which 16 people are male (15.7%), and 86 people are female (84.3%). This is a common ratio of gender in accounting jobs. Regarding the qualifications of respondents, the results show that 60% of respondent have a bachelor's degree, 40% have a master's degree. Regarding work experience, only 2 accountants have more than 20 years of work experience. Regarding position, most respondents are chief accountants (52 people accounting for 51%), followed by internal accountants (39 people accounting for 38.2%), and only 11 people are directors (accounting for 10%).

Table 3
General characteristics of firms

	Variables	Category	Frequency	Percent (%)
1.	Types of firms	Joint-stock company	37	36.3
		Limited liability company	42	41.2
		Private company	15	14.7
		Joint-venture company	8	7.8
		Total	102	100.0
2.	Sectors	Manufacturing	50	49.0
		Trading	15	14.7
		Services	24	23.5
		Construction	13	12.7
		Total	102	100.0
3.	Location of Head office	Northern Vietnam	26	25.5
		Central Vietnam	27	26.5
		Southern Vietnam	26	25.5
		Other countries	14	13.7
		Others	9	8.8
		Total	96	94.1
4.	Firm age (in years)	Up to 5 years	8	7.8
		6 to 10 years	15	14.7
		11 to 15 years	32	31.4
		16 to 20 years	10	9.8
		Over 20 years	37	36.3
		Total	102	100.0

- *(Source: Compiled by the authors based on research results)*

The classification of enterprises into groups including type of enterprise, sectors, geographic area, firm age was to ensure the representativeness of the research sample. However, in the process of collecting data, there exists differences from the initial plan. Specifically, regarding type of enterprise, the results show that most companies were limited liability companies and joint stock companies, accounting for 41% and 36% respectively, private enterprises account for 15% and joint ventures take up 8%. The manufacturing sector accounts for the largest proportion (49%), followed by the service sector with 24%, and the trading and service sectors have the smallest proportions. Regarding length of operation, the surveyed enterprises are evenly distributed in the North, Center and South of Vietnam with proportion ranging from 30% to 34%. Regarding firm age, most enterprises has operated from 15 to 20 years (36.3%), only 31.45% of companies has operated from 10 years to 15 years, 15 enterprises had operated for less than 10 years and 8 enterprises has operated for less than 5 years.

4. Research results

4.1. Descriptive statistics of variables

The enterprise size is measured by variables including annual turnover, capital, number of employees, number of products. These variables have mean values ranging from 2.69 to 3.59. This indicates that measurement scales are appropriate to measure enterprise size factor and have impact on management accounting application. Business environment is measured by 4 items including the legal, socio-cultural, technological and competitive environment. These variables have mean values ranging from 3.65 to 3.75. Particularly, the legal environment has the highest mean value, the competitive environment has the lowest mean value. Opinion of managers is measured by 5 items reflecting the increasing level of opinion. These variables have mean values ranging from 4.09 to 4.26. The management strategy is a new variable added through the in-depth interview of the directors and chief accountants, this variable has a mean value of 3.37. The organizational structure is considered to have

a strong influence on the application of management accounting and the basis for a successful management accounting system. This factor is measured by 4 variables including division of departments (3.86), establishing functions, rights and responsibilities of each department (3.83), each department evaluating its own performance periodically (3.72), each department having separate reporting system (3.62).

Table 4
Descriptive statistics of variables

No.	Cod	Variables	N	Min	Max	Mean	Std. Deviation
1	SIZE1	Capital	102	1	5	3.59	1.075
2	SIZE2	Annual turnover	99	1	5	3.24	1.098
3	SIZE3	Number of employees	102	1	5	3.1	1.255
4	SIZE4	Number of products	100	1	5	2.69	1.22
5	ENVI1	Legal environment	102	3	5	3.75	0.575
6	ENVI2	Competitive environment	102	3	5	3.65	0.655
7	ENVI3	Technological environment	102	2	5	3.67	0.722
8	ENVI4	Social-cultural environment	102	2	5	3.65	0.713
9	OPIN1	Awareness of management accounting	102	2	5	4.24	0.76
10	OPIN2	Appreciation of management accounting	102	2	5	4.26	0.688
11	OPIN3	Willingness to apply management accounting	102	3	5	4.13	0.608
12	OPIN4	Management strategy	102	3	5	4.09	0.676
13	OPIN5	Accountants' ability provide consultation and directions	102	2	5	3.73	0.677
14	STRU1	Organization divided into departments	102	2	5	3.86	0.564
15	STRU2	Each department having specific functions, rights and responsibilities	102	2	5	3.83	0.676
16	STRU3	Each unit having a separate reporting system	102	2	5	3.72	0.666
17	STRU4	Each unit evaluates its own performance	102	2	5	3.62	0.732
18	TECH1	Advanced manufacturing technology	102	1	5	3.72	0.894
19	TECH2	Automation of sales	102	1	5	3.63	1.004
20	TECH3	Automation of human resources management	102	1	5	3.55	1.05
21	TECH4	Automation of accounting staff	102	1	5	3.41	1.129
22	TECH5	Total quality management	101	1	5	3.27	1.207
23	TECH6	Just in time system	102	1	5	3.16	1.208
24	CULT1	Establishing regulations on finance, human resources, reward, penalty, appointment, recruitment	102	2	5	3.58	0.696
25	CULT2	Establishing a code of conduct	102	2	5	3.52	0.767
26	CULT3	Support of managers to employees	102	2	5	3.58	0.71
27	CULT4	Cooperation of employees	102	3	5	3.65	0.591
28	CULT5	Consensus on development goals	102	2	5	3.64	0.672
29	CULT6	Building internal and external corporate image	102	3	5	3.75	0.62
30	APMA1	Application in planning	102	2	5	3.43	0.668
31	APMA2	Application in controlling	102	2	5	3.41	0.709
32	APMA3	Application in evaluation	102	2	5	3.43	0.85
33	APMA4	Application in decision making	102	2	5	3.56	0.896

(Source: Compiled by the authors based on research results)

In general, all 4 variables have impacts on the management accounting application in enterprises. Technology variable is considered in the following aspects: using advanced manufacturing technology; automation of sales; adopting total quality management system; applying just in time system. These variables have relatively high mean values ranging from 3.16 to 3.72. Organizational culture is measured by 6 variables. These variables have relatively high mean values ranging from 3.52 to 3.75. In particular, enterprises agree that establishing internal and external corporate image is the most important thing with a mean value of 3.75. Code of conduct receives less attention and is mainly established in large enterprises, state-owned enterprises or joint ventures. In brief, variables are appropriate to measure organizational culture. Management accounting application is examined in 4 management functions including: planning, controlling, evaluation and decision making. In which, decision making function has the highest mean value of 3.56. Applying management accounting in controlling costs has the lowest mean value of 3.41.

4.2. Reliability test (Cronbach's Alpha)

In order to examine the reliability of measurement scales, the Cronbach's alpha test was conducted. Firstly, reliability of each item of variables was tested. Regarding management accounting application, this factor is measured by 4 variables so any item with Cronbach's Alpha coefficient less than 0.3 will be eliminated, and reliability test will continue with the remaining variables. The results show that "Applying management accounting in decision making" with Cronbach's Alpha coefficient = 0.218 <0.3 is removed.

Table 5
Reliability test of dependent variable

No.	Cod	Variables	Number of variables		Cronbach's Alpha	Corrected Item_Total Correlation	Removed item
			Before deleting item	After deleting item			
1.	APMA1	Planning	8	8	0.877	0.505 - 0.781	
2.	APMA2	Controlling	4	4	0.861	0.630 - 0.782	
3.	APMA3	Evaluation	5	5	0.814	0.407 - 0.873	
4.	APMA4	Decision making	4	3	0.868	0.817 - 0.891	Continue or stop

(Source: Compiled by the authors based on research results)

The results show that the 4 variables measuring management accounting application in enterprises have Cronbach's Alpha coefficients over 0.8, the total correlation coefficient of each scale ranging from 0.548 to 0.891. This shows that all factors and scales are reliable and can be used for Exploratory Factor Analysis. Reliability test was conducted with measurement scales of factors affecting management accounting application in enterprises. The results are shown in the Table 6.

Table 6
Reliability test of independent variables

No.	Cod	Variables	The number of observed variables		Cronbach's Alpha	Corrected Item_Total Correlation	Removed item
			Before deleting item	After deleting item			
1	SIZE	Enterprise size	4	4	0.747	0.438-0.598	
2	ENVI	External environment	4	4	0.748	0.436-0.632	
3	OPIN	Opinion of managers	5	5	0.841	0.499-0.797	
4	STRU	Organizational structure	4	3	0.761	0.552-0.646	Organization divided into departments
5	TECH	Technology	6	6	0.877	0.514-0.779	
6	CULT	Organizational culture	6	6	0.894	0.664-0.811	
		Dependent variable					
7	APMA	Application of management accounting	4	4	0.875	0.636-0.781	

(Source: compilation of data processed by SPSS 20)

It can be seen that there are 6 independent variables and 1 dependent variable with a total of 32 measurement scales. After running Cronbach's Alpha test for the first time for each variable, variable "Organization divided into departments" was removed because Cronbach's Alpha coefficient = 0.245 <0.3. The Cronbach's Alpha coefficients of variables range from 0.741 to 0.894 and the total correlation coefficients of variables range from 0.436 to 0.811. This shows that the factors and measurement scales are reliable and can be used in EFA.

4.3. Exploratory factor analysis (EFA)

This study has 6 independent variables with 29 observed variables and 1 dependent variable with 4 observed variables, sample size is 120 (satisfied the requirement of sample size ≥ 100 and ≤ 350), so Factor loading is set at 0.55. Furthermore, KMO = 0.66 which indicates that factor analysis is

appropriate for research data. In addition, significance value = 0,000 ≤ 0.5 which means that the variables are highly correlated, providing a reasonable basis for factor analysis.

Table 7

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.646
Bartlett's Test of Sphericity	Approx. Chi-Square	1326.419
	df	253
	Sig.	.000

(Source: compilation of data processed by SPSS 20)

The Total Variance Explained table shows that the cumulative percentage of variance accounted for by factors is 70.67%. This indicates that 70.67% of the total variance is accounted for by observed variables. In addition, a factor with eigenvalue < 1.0 explains less information than a single item would have explained. Therefore, only factors with Eigenvalue >1 and cumulative percentage ≥ 50% can be extracted (Table 8). The rotated component matrix table represents all rotated factor loadings which are greater than 0.55. The results are shown in the Table 9.

Table 8

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.849	21.084	21.084	4.849	21.084	21.084	4.003	17.406	17.406
2	3.450	14.999	36.083	3.450	14.999	36.083	3.498	15.210	32.616
3	2.634	11.451	47.534	2.634	11.451	47.534	2.367	10.290	42.906
4	2.342	10.185	57.718	2.342	10.185	57.718	2.359	10.258	53.164
5	1.648	7.164	64.882	1.648	7.164	64.882	2.199	9.563	62.726
6	1.333	5.795	70.677	1.333	5.795	70.677	1.829	7.951	70.677
7	.976	4.243	74.920						
8	.776	3.376	78.296						
9	.718	3.123	81.420						
10	.646	2.808	84.228						
11	.588	2.558	86.786						
12	.477	2.075	88.861						
13	.455	1.978	90.839						
14	.406	1.766	92.605						
15	.325	1.413	94.018						
16	.310	1.348	95.365						
17	.274	1.191	96.556						
18	.219	.953	97.509						
19	.165	.718	98.227						
20	.155	.672	98.899						
21	.124	.537	99.436						
22	.095	.412	99.848						
23	.035	.152	100.000						

Extraction Method: Principal Component Analysis.   *(Source: compilation of data processed by SPSS 20)*

Before conducting EFA, the study was designed with 6 independent variables and 29 observed variables. After running EFA for the first time, there are 6 independent variables with only 23 observed variables since 6 observed variables were removed during the analysis because their factor loadings factor is smaller than 0.55. In particular, the first 5 observed variables measuring "Opinion of managers" and the last observed variable measuring "Organizational structure" are removed, the remaining 23 variables are sorted into 6 factors. The specific results are presented as follows:

Factor 1: Organizational culture includes 6 observed variables CULT1, CULT2, CULT4, CULT5, CULT6 with loading factors ranging from 0.660 to 0.879.

Factor 2: Technology includes 4 observed variables TECH1, TECH2, TECH5, TECH6 with loading factor ranging from 0.776 to 0.909.

Factor 3: Business environments include 4 observed variables ENVI1, ENVI2, ENVI3, ENVI4 with loading factor ranging from 0.698 - 0.792.

Factor 4: Enterprise size includes 4 observed variables SIZE1, SIZE2, SIZE3, SIZE4 with loading factor ranging from 0.642 - 0.799,

Factor 5*: Organizational structure* includes 3 observed variables STRU1, STRU2, STRU3 with loading factor ranging from 0.761 - 0.812

Factor 6: Human Resources Operations includes 2 observed variables TECH3, TECH4 with loading factor ranging from 0.716 - 0.830.

Table 9
Rotated Component Matrix[a]

Cod	Variables	Component					
		1	2	3	4	5	6
CULT2	Establishing a code of conduct	0.879					
CULT1	Establishing regulations, policies on finance, human resources, rewards, fines	0.834					
CULT5	Consensus on development goals	0.819					
CULT3	Support of managers to employees	0.789					
CULT4	Cooperation of employees	0.731					
CULT6	Establishing internal and external corporate image	0.66					
TECH6	Just in time system		0.909				
TECH5	Total quality management		0.892				
TECH1	Advanced manufacturing technology		0.876				
TECH2	Applying automation of sales		0.776				
ENVI2	Competitive environment			0.792			
ENVI3	Technological environment			0.785			
ENVI4	Socio-cultural environment			0.709			
ENVI1	Legal environment			0.698			
SIZE3	The number of employees				0.799		
SIZE1	Annual turnover				0.798		
SIZE2	Capital				0.727		
SIZE4	The number of products				0.642		
STRU4	Each department having separate reporting system					0.812	
STRU3	Each department evaluating its own performance					0.781	
STRU2	Regulating functions, rights and responsibilities of each department					0.761	
TECH3	Automation of accounting staff						0.83
TECH4	Automation of human resources management						0.716

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

- *(Source: compilation of data processed by SPSS 20)*

4.4. Regression analysis

Correlation analysis

The correlation analysis was conducted between 6 independent variables and dependent variable (APMA). The purpose of correlation analysis is to determine the strength of the linear relationship between the dependent variable and the independent variables, and test autocorrelation before performing regression analysis. The correlation test results are shown in Table 10. The results indicate independent variables including ENVI, SIZE, CULT, STRU, TECH, OPPE are correlated with dependent variable APMA with significance value <0.05. The variable ENVI is negatively correlated with the dependent variable, the remaining variables are positively correlated with the dependent variable.

Table 10

Correlations_Spearman's rho

		ENVI	APMA	SIZE	CULT	STRU	TECH	OPPE
ENVI	Correlation Coefficient	1	-0.084	0.165	0.107	0.064	0.156	0.165
	Sig. (2-tailed)	.	0.003	0.107	0.286	0.521	0.12	0.098
	N	102	102	97	102	102	101	102
APMA	Correlation Coefficient	-0.084	1	0.192	0.194	0.039	.256**	.225*
	Sig. (2-tailed)	0.003	.	0.04	0.021	0.099	0.01	0.023
	N	102	102	97	102	102	101	102
SIZE	Correlation Coefficient	0.165	0.192	1	0.128	0.051	0.11	0.049
	Sig. (2-tailed)	0.107	0.04	.	0.211	0.622	0.286	0.63
	N	97	97	97	97	97	96	97
CULT	Correlation Coefficient	0.107	0.194	0.128	1	0.138	0.185	.379**
	Sig. (2-tailed)	0.286	0.021	0.211	.	0.166	0.064	0
	N	102	102	97	102	102	101	102
STRU	Correlation Coefficient	0.064	0.039	0.051	0.138	1	.227*	.260**
	Sig. (2-tailed)	0.521	0.099	0.622	0.166	.	0.022	0.008
	N	102	102	97	102	102	101	102
TECH	Correlation Coefficient	0.156	.256**	0.11	0.185	.227*	1	.541**
	Sig. (2-tailed)	0.12	0.01	0.286	0.064	0.022	.	0
	N	101	101	96	101	101	101	101
OPPE	Correlation Coefficient	0.165	.225*	0.049	.379**	.260**	.541**	1
	Sig. (2-tailed)	0.098	0.023	0.63	0	0.008	0	.
	N	102	102	97	102	102	101	102

This is consistent with the proposed research hypotheses. Therefore, all hypotheses from H_1 to H_6 are accepted. However, the Pearson correlation coefficient between variables are relatively low (<0.9) reflects poor correlation between the independent variables and dependent variable. The independent variables are not correlated with each other because Significance values are> 0.05. The results of correlation matrix are consistent with the EFA table above. The correlation analysis between the dependent and independent variables shows that research data is appropriate for regression analysis to investigate the factors affecting the application of management accounting in enterprises.

Regression analysis

The regression results between independent variables ENVI, SIZE, CULT, STRU, TECH, OPPE and dependent variable APMA are shown in Table 11.

Table 11

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.653[a]	.625	.666	.63063	1.172

    a. Predictors: (Constant), OPPE, SIZE, STRU, ENVI, CULT, TECH

    b. Dependent Variable: APMA

Adjusted R Square = 0.666 (Table 11), which means that 6 independent variables can explain 66.6% of variance of management accounting application in enterprises, the remaining 33.4% may be accounted for by other variables or random errors. The Anova analysis points out the significance value fit for the research data and can be used to predict the impact of variables with significant accuracy (Sig. < 0.05). In addition, each factor in the model is analyzed and tested to examine their impact on dependent variables.

Table 12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	3.668	.776		4.726	.000		
	ENVI	-.158	.131	-.046	.447	.046	.945	1.059
	SIZE	.181	.089	.210	-2.040	.044	.931	1.074
1	CULT	.291	.129	.375	.703	.004	.863	1.159
	STRU	.201	.125	.269	1.603	.012	.887	1.128
	TECH	.136	.079	.203	1.730	.017	.714	1.400
	OPPE	.034	.086	.046	.395	.014	.718	1.393
a. Dependent Variable: APMA								

VIF coefficients of 6 independent variables range from 1.059 to 1.400, which are smaller than 2, thus, there is no multicollinearity (Table 12). Furthermore, Durbin - Waston = 1.172 which indicates that there is no autocorrelation. Therefore, the regression equation reflecting relationship between independent variables and dependent variable is presented as follows:

$$APMA = -0.046 \times ENVI + 0.210 \times SIZE + 0.375 \times CULT + 0.269 \times STRU + 0.203 \times TECH + 0.046 \times OPPE$$

5. Discussion and conclusion

5.1. Business environment

The research results show that the business environment is adversely associated with management accounting application, however, with small impact (- 0.046). In particular, competitive environment has the greatest impact. The higher the degree of competition regarding competitors, market share/revenue, prices, the number of competitors in the same market segment, the lower the level of management accounting application. This result confirms hypothesis H_2 and is consistent previous studies of Afirah (2018), Lavia et al. (2015), Armitage and Webb (2013), Michael et al. (2013). This can be explained by the fact that in a highly competitive environment along with instable legal systems, declining culture, it is difficult for enterprises to focus on management accounting techniques. Currently, Vietnamese enterprises are facing fierce competition and pressure of economic integration. The dynamic, potential but challenging business environment requires Vietnamese enterprises to apply a management accounting system with suitable techniques in order to manage resources effectively and enhance competitive advantages.

5.2 Enterprise size

The research results show that the enterprise size has a positive impact on management accounting application with a coefficient of 0.210. This indicates the larger the enterprise size (reflected by annual turnover, the number of employees, amount of capital, the number of products), the higher the use of management accounting. This result confirms hypothesis H_1, and is consistent with previous studies of Kordlouie and Hosseinpour (2018), Afirah (2018), Armitage and Webb (2013). In Vietnam, when it comes to enterprise size, there is a big difference between small enterprises, medium-sized enterprises and large enterprises regarding the application of management accounting. Specifically, large-scale enterprises with strong financial capacity, diverse products, and large market share, with complex management systems require highly sophisticated management accounting techniques. In small enterprises, it is not necessary to design a management accounting system. However, it is possible to apply management accounting in small companies especially at high level management. The owners/ managers of enterprises or the chief accountants must equip themselves with knowledge and application of management accounting. The application of management accounting in small businesses can help them reduce risks through budgeting tools, create better business plan or take advantages of business opportunities.

5.3 Organizational culture

In this study, the organizational culture has the highest impact on the application of management accounting in enterprises, with the coefficient of 0.375. Research results show that support from managers to employees, consensus on development goals, and cooperation of employees in departments increase the feasibility of management accounting application. This result confirms hypothesis H6, and is consistent with previous studies of Erserim (2012), Chenhall (2007), Xydias-Lobo et al. (2004), Laitinen (2003). In Vietnam, the majority of enterprises are small enterprises with personal and family relationships. Therefore, the consistency and conformity are relatively high which can facilitate the application of management accounting such as developing standard costing; decision making tools; budgeting and control; performance measurement can reach high consensus from business departments, and the Board of Directors.

5.4 Organizational structure

The results of regression analysis show that organizational structure has a positive effect on the application of management accounting in enterprises, with the coefficient of 0.269. This factor has the highest impact on the dependent variable. This result confirms hypothesis H4 that, and is consistent with previous studies of Fasesin (2015), Lavia et al. (2015), Abdel and Luther (2008). Enterprises in Vietnam operate under the Vietnamese Enterprise Law and often have line and functional organizational structure. Specifically, clear structure of enterprises is reflected in the division of the organization into small units such as departments, units, teams with specific tasks, and performance of each unit is periodically evaluated. Therefore, clear organizational structure facilitates the application of management accounting in Vietnamese enterprises.

5.5 Technology

This study proved that technology has a positive impact on the application of management accounting (coefficient = 0.203). This result confirms hypothesis H_5, and is consistent with previous studies of Kordlouie and Hosseinpour (2018) , Afirah (2018), Lavia et al. (2015), Ahmad (2012). In the era of industrial revolution 4.0, technology has a great influence on business activities. New technology allows high-level automation in producing and manufacturing as well as communication and cooperation between machines and humans in a real-time. Specifically, technology is represented by the degree of automation in the processes of production, sales, personnel, business, management. It enables rapid production and standardized quality. This study also showed that technology factors and firm size (the amount of capital and the number of product) have a positive impact on the application of management accounting. Hardware and software technologies are applied and enhance efficiency in foreign-invested companies (joint ventures). Companies with a capital of more than 200 billion VND, revenues of more than 200 billion VND, and more than 200 products such as Samsung, Toyota, Canon, apart from machinery and equipment, they also apply technology such as management process, automatic production, employee work trackers, controlling inventory, materials. The automation level may reach 52%. In State-owned companies, technology is not advanced and includes mainly machinery and equipment with poor operation and management processes. The amount of investment in technology in the private sector (limited liability companies and joint stock companies) is smaller than that in stated-owned enterprises, but higher efficiency.

5.6 Human resources management

The factor of human resources management has a positive influence on the application of management accounting, however the level of impact is small (0.046). The management of human resources depends greatly on the perspectives and strategies of the managers. With highly flexible management strategy, companies need to apply complex management accounting techniques to collect relevant information for making decisions in diverse business contexts.

6. Summary and Conclusion

Management accounting is considered a component of management system in enterprises. Managers at all levels can use management accounting information to perform management functions and achieve business objectives. However, application of management accounting is affected by many factors, so investigating influential factors is essential. This study using quantitative research method proved that organizational culture has the highest impact of management accounting application, followed by organizational structure and technology. Therefore, potential solutions for enterprises are proposed as follows:

Solutions regarding organizational culture: Organizational culture is one of the most valuable assets of an organization which should be preserved and promoted by its members. Companies with strong cultures have a high consensus among members toward common objectives which is a critical factor for long-term success. Potential solutions for companies to promote and strengthen their culture include

(i) Developing an investment strategy to explore and promote strengths and talents of each employee in the organization; (ii) Regularly evaluating strengths and weaknesses of corporate culture to communicate and remind responsibilities and obligations of each individual in enterprises; (iii) Organizing events to enhance teambuilding, contests, programs to enhance cooperation and help employees understand corporate culture as well as the importance and benefits of the development of the enterprises and its members.

Solutions regarding enterprise size: There are many different ways to increase enterprise size such as mergers, integrations, alliances. With larger size, companies can have sufficient financial capacity to access capital from banks. It is recommendable to diversify business activities, products. Furthermore, in order to apply management accounting effectively, appropriate data collection should be emphasized which allows better processing of data and making reports for managers at all levels. In other words, it is critical to maintain high consistency from data collection to data analysis

Solutions regarding business environment: Business environment is an external factor which has a negative impact on the application of management accounting in Vietnamese enterprises. Since it is impossible to restrain or reduce the impact of external environment, an effective solution is to adapt to the environment and take control of enterprises' production and business activities. Particularly, enterprises should select appropriate management accounting techniques to help managers make right decisions to tackle environmental instability.

Solutions regarding organizational structures: Enterprises should select suitable management structures, adapt the management structures in relation to organizational cultures. Furthermore, management structures should be established based on responsibility center.

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